



## CONSTANT COMMUNICATION WHEN IT MATTERS MOST

# ASTRO® 25 MCC 7500 IP DISPATCH CONSOLE

Designed to ensure optimal-quality audio, reliable communication and ease of use for dispatchers, the MCC 7500 IP Dispatch Console operator positions connect directly to the ASTRO 25 system for communication with both trunked and conventional radios, and for all other dispatch activity.

Integration of the MCC 7500 Console positions with the ASTRO 25 system enables full participation in end-to-end voice encryption for secure communication, priority handling of emergency calls and agency partitioning. Each console is centrally configured and managed from the network manager, providing vital efficiency.

### EASY TO USE, FLEXIBLE, AND CUSTOMIZABLE USER INTERFACE

Featuring the Elite Graphical User Interface (GUI), that has been refined and proven through years of use in mission critical dispatch operations, the MCC 7500 Console eases migration and minimizes user training requirements.

The intuitive and familiar GUI is based on Microsoft Windows® and uses easily recognized icons and aliases. The GUI's powerful customization capabilities enable the colors, sizes and locations of resources on the screens

to be tailored to best meet each individual user's needs. Designated folders organize resources for flexibility in handling responsibilities from shift to shift and increased efficiency in responding to events and incidents.

Trunked and conventional radio channels are customizable with various controls, such as patch status, frequency select, coded/clear select and individual volume control, based on user preferences. Per-channel controls can be fully or partially shown, or hidden to save space on the screen.

Busy dispatchers can respond to a missed call by simply clicking on an entry in the Activity Log. The number of calls and call information displayed in the Activity Log is customizable to suit the needs of the user(s).

Telephone resources are accessed and easily patched with radio resources within the MCC 7500 Dispatch Console's GUI, eliminating the cost of having additional telephone equipment at the dispatch position and speeding communications between systems.

The status of auxiliary inputs and outputs is conveniently interpreted from the GUI with the use of familiar graphical icons, such as a door shown open or closed.

### KEY INTEROPERABILITY FEATURES

#### Agency Partitioning

Multiple agencies can share a system to gain interoperability and cost savings benefits, while still maintaining control of their own channels, encryption keys, console configuration and more.

### **Priority for Emergencies**

Transmit Priority Levels provide an orderly and consistent method for ensuring higher priority transmissions are able to take over resources from lower priority transmissions.

### **Optimized Patch Functionality**

MCC 7500 Console users can patch communications between trunked and/or conventional radios that are normally unable to communicate with each other. Patched radio users see the ID or alias of the other patched radio(s), as opposed to that of the console.

This minimizes confusion and the need for the dispatcher to intervene in the call. Patches are automatically re-established if interrupted so the MCC 7500 Console user can concentrate on continuing operations.

### **Enhanced Secure Operation**

Encryption and decryption services within each dispatch operator position enable dispatchers to fully participate in secure communications while keeping the sensitive, vital information completely encrypted between the dispatcher and the radio users.

Dispatchers can interface with agencies that have different encryption configurations without any manual intervention or delay. Up to 60 calls using up to six different algorithms and multiple secure keys can be supported simultaneously.

To help reduce dispatcher stress and potential errors when managing encrypted audio situations, indicators and alerts are provided when the console mode does not match that of a received call, as well as when a patch or multi-select group is being set up between a mix of clear and secure channels.

## **MCC 7500 CONSOLE SOLUTION COMPONENTS**

### **MCC 7500 Console Operator Position**

MCC 7500 Console operator positions connect directly to the radio system's IP transport network without gateways or interface boxes. Audio processing, encryption, and switching intelligence for dispatch is performed within each software-based operator position, without additional centralized electronics. MCC 7500 Consoles function as integrated components of the total radio system, enabling full participation in system level features such as end-to-end encryption and agency partitioning.

Operator position hardware consists of a monitor, personal computer, keyboard and mouse/trackball/ touchscreen, speakers, audio accessories and a Voice Processor Module (VPM). The VPM allows analog devices to be connected to the digital console. The low-profile VPM can be rack mounted, furniture mounted or placed on the desktop.

The MCC 7500 Console does not require separate configuration or performance management equipment. The console system is configured and managed by the radio system's configuration manager, fault manager and performance reporting applications to provide the customer with a single point for configuring and managing the entire radio system. Changes are automatically

distributed throughout the system. This centralized approach saves valuable time and effort for system administrators and technicians. Aliases for Radio PTT IDs may be managed both locally and centrally in the same system to provide agencies sharing an ASTRO 25 radio system with the flexibility to meet their alias management needs.

## **CONVENTIONAL GATEWAY**

The Conventional Channel Gateway (CCGW) enables both analog and digital channels to interface with MCC 7500 Consoles with no need for a separate hardware network and channel banks. Conventional calls are transported between the dispatch operator positions and CCGWs on the same IP network as trunked calls.

A CCGW provides 2-wire/4-wire analog ports for analog channels, V.24 ports for older ASTRO 25 conventional channels and IP connectivity for current architecture ASTRO 25 conventional channels. Enhanced digital control of consolettes can be achieved by using a combination of analog and V.24 ports. CCGWs are available in two capacities. The standard density CCGW supports up to eight "port based" channels and up to sixteen "IP based" channels for a total of twenty four channels. The high density CCGW supports up to sixteen "port based" channels and up to sixteen "IP based" channels for a total of thirty two channels.

The 2-wire/4-wire analog ports support tone remote and ear and mouth (E&M) station control. The V.24 ports and IP connections support digital station control while a combination of analog and V.24 ports support enhanced digital control of consolettes. The CCGW also supports simple analog, MDC 1200 analog, digital-only, mixed-mode analog/digital and P25 conventional talkgroup channels.

## **AUXILIARY INPUT/OUTPUT SERVER**

The auxiliary input/output server enables console operators to control and monitor external devices, such as doors and lights, from the console user interface. Since the MCC 7500 Console does not rely on centralized electronics, contact closures and input buffers required to interface to these devices are housed in Remote Terminal Units (RTUs). These RTUs can be physically located close to where they are needed or at any console or radio frequency (RF) site. The dispatch consoles and RTUs communicate with each other across the radio system's IP transport network.

## **ARCHIVING INTERFACE SERVER (AIS)**

The AIS is a digital logging interface, comprised of a personal computer and a voice processor module (VPM). Each AIS works with an IP-based logging recorder. Audio and call control information is sent across the IP network between the AIS and recorder. Highly configurable, the MCC 7500 Console logging solution includes:

- Recorded audio quality equivalent to audio heard at console position
- Information associated with radio calls recorded in addition to the call audio.

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- Dispatcher- and radio-initiated events on radio channels (such as changing the frequency, sending an alarm) are recorded.
- Recorder capacity based on the number of radio transmissions needed to record simultaneously, not on the number of channels it may record.
- Agency partitioning, enhancing control over which resources are recorded by what agency or department.
- Security and fault management centralized at the radio system's network manager.

## CONSOLE TELEPHONY MEDIA GATEWAYS

Media gateways are used to provide dispatchers with access to analog POTS and/or T1/E1 phone lines directly from their MCC 7500 Console positions. The Session Initiation Protocol (SIP) is used to communicate with the media gateways across the console IP network. A rich set of telephony features is supported by the media gateways, enabling dispatchers to do their jobs more effectively and efficiently.

## SPECIFICATIONS

System Compatibility	ASTRO® 25 System and PremierOne™ CAD Application	
Vocoder Algorithms supported	AMBE, IMBE, ACELP, G.728, G.711	
Encryption Algorithms supported	AES (256 bit), DES-OFB, DVI-XL, ADP (Advanced Digital Privacy), DES-XL, DVP-XL	
<b>Monitor requirements</b> With Mouse or Trackball Touchscreen	17" minimum, 20" recommended 20" minimum	
Voice Processor Module (VPM) connections	<b>Connector type</b> RJ45  DB15	<b>Device</b> One desktop microphone, eight desktop speakers, one local logging recorder, one radio instant recall recorder, one console telephony instant recall recorder, one external telephone set, one external paging encoder, one footswitch Two headset jacks connectors
VPM mounting options	EIA 19" rack mount, console furniture mount, Desktop – supports monitor up to 80 lbs	
VPM audio inputs and outputs	600 Ohm, balanced and transformer coupled (except for microphone which is 2000 Ohm, balanced, and does not use a transformer)	
Speaker Mounting Options	Desktop, furniture mount, or wall mount (with bracket accessory)	
Dispatch Console Cable Lengths	VPM to Speaker cable VPM to Headset Jack cable Headset Jack Extension cable VPM to Microphone cable VPM to Footswitch cable	10.1 feet (3.09 meters) standard 6 feet (1.8 meters) standard 6 feet (1.8 meters) standard 10 feet (3.05 meters) standard 10 feet (3.05 meters) standard
Supported Console Site Link types	Fractional T1/E1, Single T1/E1, Multiple T1/E1s Redundant and non-redundant versions IP site links	
MCC 7500 Dispatch Console Capacities	Up to 60 simultaneous audio sessions per operator position Up to 60 simultaneous encryption/decryption sessions per secure capable operator position Up to 3 Multi-Select groups per operator position (with up to 20 members per Multi-Select group) Up to 16 Patch groups per operator position (with up to 20 members per Patch group) Up to 160 resources per operator position	
Conventional Channel Gateway	Rack mountable, 1 rack unit high T1R1, T2R2, T4R4, T8R8, T12R12, T14R14 channels Simple analog, MDC 1200 analog, pure digital, mixed mode (analog/digital) and P25 conventional talkgroup channels, consolettes Standard density CCGWs provide interfaces for up to four analog conventional channels High density CCGWs provide interfaces for up to eight analog conventional channels Each analog conventional channel interface contains the following inputs and outputs <ul style="list-style-type: none"> <li>• 600 Ohm, balanced analog audio input - To accept radio audio from the channel. Can be configured to support AGC, DLM, or no input conditioning.</li> <li>• 600 Ohm, balanced analog audio output - To send console transmit audio to the channel</li> <li>• 600 Ohm, balanced analog audio output - To send console transmit and radio receive audio to a logging recorder</li> <li>• 1 Amp, 24 VDC relay output - For relay keying of the channel</li> <li>• Input buffer - To detect Carrier Operated Relay (COR) closure in the channel</li> <li>• Input buffer - To detect Line Operated Busy Light (LOBL) closure in the channel</li> <li>• Input buffer - To detect Coded/Clear closure on an Advanced Securenet channel</li> </ul> Standard density CCGWs provide interfaces for up to four V.24 based ASTRO 25 conventional channels High density CCGWs provide interfaces for up to eight V.24 based ASTRO 25 conventional channels <ul style="list-style-type: none"> <li>• V.24 to station or comparator. No Digital Interface Unit (DIU) required.</li> </ul> Standard density CCGWs can support up to 24 conventional channels simultaneously ( four analog + four V.24 based ASTRO 25 conventional + sixteen IP based ASTRO 25 conventional) High density CCGWs can support up to 32 conventional channels simultaneously ( eight analog + eight V.24 based ASTRO 25 conventional + sixteen IP based ASTRO 25 conventional)	

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Auxiliary Input/Output Server Hardware	A simplified, user-friendly version of the MOSCAD SDM 3000 RTU is used to support most Aux I/O needs. The output relays are capable of switching 1A @ 24VDC or 1A @ 24VAC. Input buffers are capable of sensing a dry closure through 1000 feet or less (round trip) of 24 AWG wire. The RTU provides single pole Form A relay outputs. (Double pole, Form B or Form C relays must be implemented using external relays which are controlled by the RTU relays.)	
<b>Auxiliary Input/Output Capacities</b>	<b>Number of Output Relays</b>	<b>Number of Input Buffers</b>
Single SDM 3000 RTU	16	48
Single SDM 3000 RTU with 1 expansion chassis	32	96
Single SDM 3000 RTU with 2 expansion chassis	48	144
Auxiliary Input/Output Mounting	Each SDM 3000 RTU and each SDM 3000 RTU Expansion Chassis is rack mountable in a standard 19 inch rack and is one rack unit high.	
Console Telephony Media Gateway	The POTS version gateway supports up to eight analog POTS lines. The E1/T1 version gateway supports up to two E1 or two T1 connections. Each gateway is rack mountable in a standard 19 inch rack and is 1 rack unit high.	

**SIZE AND WEIGHT**

Device	Height	Width	Depth	Weight
VPM	1.75 in (44.5 mm)	16.9 in (430 mm)	12.3 in (312 mm)	3.6 lbs (1.6 kg)
Speaker	4.9 in (124 mm)	4 in (102 mm)	Without bracket: 3.5 in (89 mm) With bracket: 5.8 in (146 mm)	0.7 lbs (0.3 kg)
Headset Jack	1.6 in (41 mm)	5 in (127 mm)	6 in (152 mm)	1.2 lbs (0.5 kg)
Microphone	Gooseneck at 90°: 4.5 in (114 mm) Gooseneck at 180°: 21.8 in (552 mm)	4.8 in (121 mm)	6.6 in (168 mm)	2.4 lbs (1.1 kg)

**POWER AND CONSUMPTION THERMAL**

Device	Power Input	Thermal Output
VPM	0.4 Amps at 120VAC 0.2 Amps at 240VAC	171 BTUs/hour
Speaker	Add 0.05 Amps per speaker to VPM power Input at 120VAC (0.025 Amps at 240VAC)	Add 15 BTUs/hour per speaker to VPM thermal output
Headset Jack & Microphone	negligible	negligible

**CERTIFICATIONS**

	The various hardware elements of the Motorola MCC 7500 IP Dispatch Console product line are certified to meet the requirements for CSA and CE.	
Safety	CSA 60950-1-03 EN60950-1 2001	
EMC Emissions & Immunity	FCC part 15 Class A ICES-003 EN55022 1998 + A1: 2001 + A2:2003 (CISPR-22 Class A) EN55024 + A1:2001 + A2:2003 EN61000-3-2 2000 EN61000-3-3 1995 + A1:2001	
Energy Efficiency (PVM power supply only)	International Energy Efficiency Level V	

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